

Communications Technologies at Social Services
Timor Leste

23rd September 2003

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Computer Bank Incorporated (South Australia)

Abstract

This document reports on the outcomes and activities of "The Timor Project", which was an effort to install a office level network for the Department of Social Services, Caicoli office in Timor Leste.

There are outlines of current issues and future options for training, infrastructure and deployment within the Department.

Sections include immediate actions, a proposed Training and Resource Centre, and examination of issues around skills transference and capacity building.

Warning this document contains much that is stylistically inconsistent.

The PDF version of this document contains an index.

Preface

This report is specifically written for the use of the Australian Federal Department of Family and Community Services and Computer Bank Incorporated Australia. While written as a stand alone report an associated document titled : SOCIAL SERVICES COMPUTING ENVIRONMENT AND ASSOCIATED ISSUES (release 0.0.3 or later) could helpfully be read in conjunction with this report.

Primarily this is an attempt to note issues and recommendations that were gathered during the on-site period of "The Timor Project". There is some considerable expansion on concepts around training and capacity development. It is in those areas that best effect could be had.

All views and opinions expressed here are those of the Author alone and have been arrived at after some consideration of the situation at Social Services in Dili. The cardinal intent is identifying difficulties and impediments to easy application of Computer based Technologies.

I emphasise that this report is not intended to be some sort of judgement on the qualities of the current Ministry. The body of the Ministry , it's staff, leadership and advisory personnel are committed, focused, hardworking and well tasked. Their Mission is comprehensive and seriously under resourced.

[When your in the middle of a Bush Fire ... well, your pressed to stop it growing ... how the thing started is not your current concern.]

The format and approach taken here attempts to be accessible, frank and definitive.

Classy writing it ain't... I apologise up front for my poor attempts at humour. (but then *you* only have to read this once :)

Peter Gossner

Release 0.0.3

Chapter 1

In Process

1.1 Requested Support

"You want what ?"

The original objective of the Computer bank "East Timor Project" was to deliver and deploy network capable office level desktop machines , and provide training in the use of those machines.

The request for these machines came through the Australian Federal Department of Family And Community Services (FaCS) for the roughly analogous Timor Leste Department of Social Services and Solidarity.

After some initial discussions and FaCS facilitated, translator assisted telephone hookups Computer Bank South Australia agreed to undertake the supply of the requested equipment. The process was internally structured as a "Project" and placed under the direction of this writer.

1.1.1 Original Objectives

"Tasking"

At commencement of this project Computer Bank was working with the intelligence that there were some 15 staff attempting to work with 2 functioning computers. The original request was for some 4 machines.

As project leader I undertook to supply a more useful configuration of at least 7 workstations a server and some miscellaneous equipment. As events turned out these machines would not be required for general office use. They remain valuable as training systems.^{1.2}

The sizing of the system was driven by what I estimated could:

- Be resourced to a reasonable specification
- Be delivered without compromising other ¹CAiSA demands.
- Prove to be transportable in a single manageable shipment.
- Function as a working example of a networked environment.
- Provided some level of redundancy when ²in situ.
- Be intensive enough to provide proof of concept for ³similar projects.

1.1.2 Cherry Picking

"⁴... hi ho it's off to work we go ..."

Gathering the initial Hardware and Software resources was relatively simple. After all, either we could find or rebuild equipment, or not.

As time passed "feature creep" extended the capacities of the individual units, the scope of the pre-installed network and the systems admin skills of this Project Leader.

Some 90% of the effort was expended after the initial gather and testing.

1.1.3 Hardware

As the equipment is second hand all units were totally rebuilt and ⁵"burnt in" to ensure a high level of performance and reliability on site. The projected working environment was evaluated as being ⁶hot, humid, dusty and generally hostile. The absence of a reliable power supply was noted but Computer bank was unable to source suitable reliable Uninterruptible Power Supplies (UPS).

Difficulties were found with both capacity and reliability of hard disk drives. These presented a combined failure rate of greater than 50% during the full course of the project.

Stability and quality of ⁷monitors was surprisingly problematic. The previously mentioned UPS units were time and anxiety centres.

The above issues were, troubling, a hindrance. The real show stopper with hardware was CDROM drives. NONE of the units CAiSA supplied were reliable enough. This

¹Computer Bank Australia Incorporated South Australian Branch

²Working in it's natural place.

³e.g. The Baxter Detention Centre. Remote Australian Communities. Oceania Generally.

⁴The 7 dwarfs. They were surprisingly jolly chaps.

⁵A process where the machine is left to run for at least 24 hours with something reasonably demanding to do. The hope (often forlorn) is that any faults or weakness will show up at this point and not in the field.

⁶check, check ,check. But only hostile for computers

⁷The monitor supply issue resolved itself the day after the equipment was dispatched.

was compounded by local (Dili) CDROM drives being equally unreliable. ⁸Units that I could "trick" into working under Linux locked up Windows with ⁹I/O errors. I soon ran out of reliable units which had major ramifications with the final turn over of the units to Windows98¹⁰. The words despair, desperation, desolation and frustration now have deeper meanings for me.

Both CAiSA and Social Services need access to New units.

Lessons here include testing under more than one platform and replacing with *new* any unit that even thinks it might be past it's use by date. Windows tends to thrash ¹¹removable drives and has no ready way of coping with out of spec hardware. (Unfortunate units left on a Windows box for more than 6 months should be considered suspect.)

Fitting more than 64meg of RAM is a perennial problem with Computer Bank equipment and is mentioned here as the resource level of these machines effected the choice of software.

No attempt was made to supply high quality Printers though a pair of Epson LX300 line printers were supplied with spare cartridges for draft and training uses. These units were chosen for their simplicity, outstanding durability, and low running cost.

An short inventory of the supplied system is appended to this document. *See6*

1.1.4 Configuration

The final design decision was for each of the 7 workstations to be functioning standalone machines while also utilising ¹²NFS when it was available. This ensured unnecessary configuration complications and was in hindsight a bad call. As I had no real way of understanding the final deployment and skill levels, a conservative design decision was called for. (even the main server was configured to work standalone as a desktop based Workstation.) *See8*

The installation and configuration of the software was an ongoing challenge as the potential scope and application of the Networked machines grew. The Tools were certainly up to the task and much of the effort was expended on installing, configuring and blending a selection of operating environments into a smallish install footprint.

During this period there was a major upgrade / release sequence for the ¹³default desktop environment. As it happened that resolved itself shortly after dispatch

⁸I will undertake a pull-down survey and study of this issue at the next opportunity I have... there must be a hardware fix for this ?

⁹In Out. The process of writing to and from the drive.

¹⁰Yet again .. Professionally embarrassed by Microsoft. I begin to understand the litigious nature of the average US citizen.

¹¹Not least because much licenced hardware requires a CDROM to be in place while operational and the unforgivably stupid mounting protocols used by Windows.

¹²Network File System

¹³Gnome2

so yet another hard disk drive was installed with a ¹⁴Debian mirror of the latest versions of everything, captured only hours before I departed.

The delivered functionalities included the usual range of office level tools on each workstation and a complete System Admin. / Developer level installation on the main server. A choice of 3 different fully configured desktop environments were deployed.

The major lesson here was intelligence gathering. Solutions needed to be over-engineered to meet unknown real requirements.

A smarter approach would be to install to a minimal functional level and bring a floppy disk or two of scripted config options. That combined with a mirror (on CD for example) would have taken no longer on site as re-tuning/updating each box.

The network configuration and a basic listing of software is included with the addenda.. See 6 and 8

1.1.5 Transport

A Flying Kangaroo .. to the rescue

The chain of transportation proved to be problematic and a real time sink. Many false leads and starts were investigated and though usually well intentioned, proved either to be dead ends or unable to be even roughly synchronised with the rest of the project. There were some notable exceptions to this though and they should be mentioned.

QANTAS provided courteous professional handling and service from the moment they came on board with a very generous offer to transport some quarter tonne of airfreight from Adelaide to Darwin totally free of charge.

Cheryl Berryman moved the units across Darwin and onto the shipping line with little incident and without thanks. Just about everything else with transportation proved problematic.

Packaging proved itself to adequate. It took some 2 days to finally check the machines, itemise the carton contents and seal them up ready for many sets of handling.

The cartons (and contents) endured no less than five sets of person handling, two trailer trips, one Ute journey, at least five pickups with forklifts, cling wrapping and palletisation, a sea journey an air voyage and about a week inside a very dusty container in the hot sun in Dili. They also got lost at least once, slashed open, gouged by something, and rolled over by customs ...

The physical condition of the system on unpacking was, given the above, surprisingly good. There had been no ingress of moisture or dust. Vibration seems to be

¹⁴Debian: A High Quality fully Open Source Linux Distribution.

the vexing issue. Some 3 of the units (including the main server) refused to operate correctly on power up. In each case something (different) had vibrated loose internally. Though in one case one hard disk drive had simply gone into retirement as well.

I will investigate more forgiving packaging or ship the units broken down into boxed sub- components (which would also save some space).

1.1.6 Customs and Pickup

The least said about this the better. However ...

In spite of much planning and effort on the part of FaCS , Computer Bank and Social Services, we still managed to stumble at this step. The Australian end of this process is simple, the packed cartons were inspected (non-intrusively) before dispatch by QANTAS staff, and declared explosives free and safe to transport.

As near as I could (retrospectively) tell Timor Leste Customs inspected the goods in the shipping container, at the holding yard of the sea carrier. In itself this was no problem. There impediments were tracking the location of the cartons after the inspection, and getting release from customs through the processes in place locally.

In spite of our preparations, three days, many phone calls (when the phone worked) and multiple visits to no less than three separate government departments, were required to get the clearance to pick up the goods.

In the meantime said goods had slipped sideways on the carrier's tracking system.

The first final "this time it's OK" pickup resulted in no goods at all. Wait one day. The second "this time" brought back some equipment.. (they were computers... just not ours).

Finally no less than 4 determined people, 2 armed with multiple copies of ALL of the Inventory, ¹⁵Shipping and Stamped Customs paper work, firmly refused to leave until we tracked the correct consignment .. now alone in a dust filled hot container ... No more than 25 meters from our ¹⁶harassed Ute.

Mario Barretto's determination, humour and multi-lingual abilities were the reason we got them at all.

The primary problem was the multilingual environment; the simple fact that the carriers had not ¹⁷read past the ¹⁸first line on the Customs inspection papers OR their own shipping bill. (Yes guys that's the consignment / tracking number, your computer is correct) In any case something of a minor adventure was had and no casualties were incurred. Though I was not allowed to ride in the back of the Ute.

¹⁵Roughly equivalent to a half ream of A4 paper

¹⁶Timor lesson #25: When in a container handling yard keep the driver in the car with the motor running. Post lookouts.

¹⁷Which is probably understandable when English is not your first language.

¹⁸Lesson #26: in Timor Leste put the name of the receiving Company first and alone on all documentation, then note the person receiving / responsible after all other addressing. (that might work)

1.2 The Situation

"There is no Santa Clause"

The state of the current Computing Hardware Infrastructure is much healthier than was originally reported to FaCS and Computer Bank at the initiation of this project.

In the meantime much had been done to successfully procure more equipment from a number of sources. These included UNICEF, the ¹⁹ILO, other UN agencies and outright purchase.

The existing body of computers should be considered a "one off" or even a windfall.

Often the donated units have been procured from agencies as they scale down or occasionally they may have been "left behind" by NGO's or UN personnel as they leave.

The future procurement patterns will be negotiated from a central government purchasing and distribution system. This system shows every sign of not coping with current demand and as far as I see could this applies to most capital acquisitions. procedures now. (*Read about Indian Utes in 2.3*)

On site comparisons with other ²⁰Ministries (Customs, "Foreign Affairs" and Unknown) reveal an uneven distribution of Resources and Advisor's. The better resourced (and staffed) Ministries seemed to be based in Colmera or nearby and not in Caicoli.

In short our guys seem to be getting the remainders from an already small pot.

1.3 Outcomes

"Chaos brings change"

The first three to four days of the expedition were consumed with making ready the "computer room", testing power, assessing local user requirements, Customs and pickup getting lost in ²¹Taxis, tracking non-existent Internet connections... Eventually, and after some ²²intense "work-shopping", it was decided to move the network out of the allocated shared room (in a demountable) and into the main building... After I had tidied it up - of course.

The power was something of an issue but was soon sorted by the site electrician who happily installed a series of Australian format power outlets about the room. Essentially I went ahead and installed the network as planned while trying to confirm just how many people would be using the system and whom I would be training.

¹⁹International Labour Organisation

²⁰see the customs section above

²¹Not a great way of orientating yourself to a new location.

²²One of the many times I wish I spoke at least one of the three languages

As it turned out the room would be configured to use 5 or 6 people at once and I would be formally training nobody.

At some point here I realised that another network was concurrently being installed .. I had wondered about all those new Portuguese format keyboards, that roll of Cat 5 cable , the ready access to an electrician ...

The UN and the Portuguese government had decided (sensibly) to install a Win2000 based network throughout the building. The choice of Operating System was expedient only, but the concept was solid.

Now I needed to interface with that network as well.. No problem ²³SAMBA to the rescue .. but who would go up front to take the exposure to the Internet.. What addressing systems were going to be used ? Did *they* have an Internet connection ! ? (yep .. well not yet)

There was much in the way of charades as two exclusively mono-lingual (Portuguese and "Straylin") Networking guys, versed in two different Operating Systems sorted this out.

In fact the relationship between Mr Antonio Rodriguez and myself was productive, fun and rewarding. Our common ground was computers , Cat 5 and Networking. Over a few days we decided that the Unix front end was safest (well of course) but would be fitted after the Microsoft network was tested. Well I think that's what we decided, I never got it in writing ...

Other factors would conspire against us.

The fact was that I had to leave before the Windows network could be installed and in the meantime for other reasons had installed Windows on the Linux boxes. Believing at the time I took that decision that IT support would be available from Mr Antonio Rodriguez who was not versed in Linux.

As matters transpired he left two weeks after I did, as was hard pressed to cover the work load he had. Language and communication had once again been the cause of critical confusion.

The Linux desktops had been well received by the passing and curious, the only major concern being voiced was by users of ²⁴Access. On taking stock of the situation I took the blasphemous decision (and too late) to move the install over to standalone Win98 desktops.. My reasons follow:

- The Win2000 network would have no problem and only simple admin tools would be required to manage it.
- The machines we had supplied were relatively underpowered , compared to the average desktop unit on site.. I could vastly improve performance by

²³SAMBA [samba] - A Windows SMB/CIFS file-server for UNIX

²⁴There are moves a foot to have MS Access users classified as a definite subspecies.

running as a cluster or simply as thin clients.. Alternatively I could run the desktops under a light weight window manager (there were two preconfigured and ready to go) ..Who would train and administer such a system ?

- The requirement was now for use as a training facility .. to train for *Windows* desktops and Applications (shudder). While the conceptual differences between Gnome2 and Win98 are minor they are enough to cause ²⁵”techno terror” and confusion to ²⁶Newbie Windows drivers... Easily resolved with a small amount of instruction... Once again who would provide even that instruction?
- Some machines were to be sent off-site for use in another office .. I think.
- Nobody ever did turn up for real training. (Thats another story)
- I now had lots of practice installing and configuring ²⁷Windows.. from fixing various machines and installs about the place.

1.3.1 Internet Access

THERE WAS NO INTERNET ACCESS.

This is an impediment to efficient communications.

It is unlikely a connection can be arranged or afforded in the near future.. Those connections that are available are used (and funded) by other organisations. The cost of even 56K dial-up access is beyond most Government departments.

There may be serious impediments to delivery at a national level. Apparently the main link is to Singapore and that involves a low altitude hop over the equator. (lots of dense atmosphere to pass through, twice). There are other routes available, though they would probably involve extra, expensive equipment at the ground level.

So, available national bandwidth may be the primary factor.

Other factors certainly come into the calculation here, not least local politics. I will not pretend I understand the rationales or delivery systems involved , and so leave this issue with no further ²⁸comment .

In any case ...

²⁵This condition is readily identified in the poor victim by a sustained state of near solid immobility (torpor). A notable exception may be the left mouse finger. The recommended cure involves removing the person from the vicinity of any monitor and small quantities of bracing (culturally specific) beverages. A gentle reintroduction to the work environment may be attempted with return of coherent vocalisations. The condition is rarely fatal but can pose serious personal security concerns for any tutor silly enough to linger in the vicinity.

²⁶New Users. Some times pejorative but usually evoked in a spirit of tolerance or genuine human empathy.

²⁷The flashbacks are easing.

²⁸OK one comment. Whatever is in place now obviously does not work. It seems to me that access has become a kind of currency. This particular drought may be contrived.

A network with traffic shaping / allocation capacities would enable efficient cost controlled access and sharing of what will be a limited resource for the foreseeable future. *See 4*

1.3.2 Finals

So what were the outcomes, did I achieve our original objectives?

Well No.

And Yes.

Yes - The network was delivered installed and well tested.

No - It was eventually totally dismantled.

Yes - I did some training

No -The training I did was ad hoc and of little real value..

I did manage to bring some level of security awareness and simple operating procedures to the Windows desktops.

Some 10 desktop machines (beyond our own) and 4 or 5 Laptops were repaired, reinstalled, and configured.

A software repository was researched and resourced.

Install protocols, were initiated as was something in the way of thinking about Divisional and Department wide IT policies.

Basic maintenance and other possibilities were demonstrated and even adopted by some.

Yes - I was genuinely useful ?

As to the original "brief" to install a network for general use .. I would have to say that the requirement no longer existed in any case.. lets write that off to poor or confused communication.

In addressing the second part of the original brief (situation assessment and intelligence gathering) I would consider that I was ²⁹successful. Though of course that is a subjective assessment.

Yes - Given the time in situ, an informed, considered and scoped assessment of the current and future needs of the organisation has been made.

²⁹While much of that raw data has found it's way into this and other reports, much of its application will have to wait for the next book.

Beyond that, identified courses of action and preliminary approaches for major improvements in communications, both within the Department and Timor Leste at large are being developed. I hope to produce some budgeted and specific recommendations (having accessed specialist information) in the reasonably near future.

1.3.3 Resolution

THE SINGLE MAJOR ISSUE HAS PROVEN TO BE COMMUNICATION.

This goes beyond simple language problems and extends into the ³⁰time available to local staff and volunteers abroad to keep up a healthy dialog during the pre-deployment phases.

I suggest future projects include large resource allocations to this end, and language lessons in Tetum or Bahasa Indonesia in particular.

On-site the situation is confused with the rebuilding effort and the lack of any particular IT expertise or objectives. Finding time for planning and quality assessments/ assurances is difficult enough without the struggle of language, cultural and conceptual barriers.

I must add here that the arrival of Cheryl Berryman (as a volunteer on her holidays) clarified much in the way of confusions and misunderstandings. Her commitment, intelligence, resolution and translation skills were extremely valuable. I have had the opportunity in the past of working with a number of translators while on site in technical environments. Cheryl's talents and approaches compared favourably with those of specialists / professionals I have worked with in Hong Kong and Singapore.

I take this opportunity to thank her on behalf of Computer Bank ³¹myself and this Project in particular.

Essentially changed circumstances, objectives and unfortunate timings compromised the original objectives. I simply attempted to throw whatever skills and time were available to helping Mr Amandio's team in whatever way seemed best at any particular moment. While concurrently working on the network.(which was a mistake) The pressing and consistent need was to bring equipment to an operational / useful state. There was some prioritisation and a fixed amount of time, not every machine I worked on was completed to my satisfaction. (Some I simply had to walk away from).

Hindsight has always been the most powerful of human senses and I now estimate that I achieved all that reasonably could be, while on site.

There was much more to be done .

³⁰Timor Telecom has much to answer for. Is this the worlds worst communications carrier or is it just stifled by the TL dept of Communications ?

³¹It was nice to be reminded that I actually could speak a language. :)

1.4 Followups

The primary followups to the on-site project have been the writing of this and one other report. There are still commitments to produce an Article for FaCS , another for Computer Bank and the Local Australian based Linux Journal.

Concurrently I have commenced planning for a resource centre, a distributed wireless network project and the installation of a professional network at Social Services. I am over committed and individually these projects are not getting the detailed attention they require. I will however, continue to bring all of them to some presentable state of pre-planning and attempt implementation (and recruitment).

Chapter 2

Key Issues

2.1 Infrastructure

¹The knee bone is connected to leg bone, the leg bone is..."

This key issue is also dealt with earlier within the Project Outcomes Section

On arrival I discovered somewhere between ²30 and 40 desktop units and at least 10 Laptops. Most of these machines are reasonably powered and resourced with a minimum of 128 meg RAM and 10 gig hard disc drives. The majority of the desktop machines are well made "Name Brand" units, notably from Compaq (Australia and Indonesia). The working life of such equipment should be some 5+ years. (given a little maintenance)

The situation with Laptop machines is more varied these range from older ³IBM "Think Pads" through to late model Pentium 3 class machines. While serviceable these units are showing signs of wear and tear. (Keyboard and Screen problems battery failures etc). Perhaps much of this is premature, but as I had no way of knowing the service life of these portable computers I could make no real judgement.

2.1.1 Building Infrastructure

"ankle bone, the ankle bone is connected to the ..."

The Building Infrastructure deserves some comment here as it effects the current deployment and will do so in the near future.

In August of 2003 the Dili section of the Ministry of Social Services and Solidarity appeared to be essentially contained in one compound. The cluster of buildings

¹This is the Marx Brothers version :)

²It was never entirely clear who owned which machines. The ILO, UNESCO and AUSAID also had equipment amongst the collection.

³International Business Machines.

while structurally sound and well maintained has electrical services that are unreliable and of a remedial nature. There are 3 large single storey buildings (masonry and solid) and 2 small demountable temporary buildings which house a number of Divisions. The razor wire fence surrounding three sides of the compound does little for the aesthetics (and a lot for the security) of the cluster.

Some 30% of the offices are fitted with working air conditioners. Generally the working environment for the staff and equipment is hot, humid and while clean, surprisingly dusty. The two store rooms I frequented could only be described as well used at best and a fire in waiting at worst. My attempts to organise the lesser of these spaces (for other reasons) were quickly reverted to chaos.

Immediately adjacent these offices are Operational Quarters for Military contingents from Fiji and a small section from Australia. These quarters are earmarked as the final space for Social Services when the UN eventually has no use for them. When this will be is not known. The building is two stories high and on casual inspection would seem to approximate the floor space of the current cluster of buildings. It may even be that these quarters will be in addition to the existing permanent structures. With some renovation they would supply an efficient clean work environment.

The transition to the new offices would be an effective time to deploy new and improve the current Computing infrastructure.

2.1.2 Language and Functional Politics

"Head bone "

Notes on On Bahsaporutetumglisch: (*sic*)

There are officially three (really 4 +) languages in use in the workplace. The official three are Portuguese (European variant) for Official Government Business, Tetum as the National Language and English as the "Lingua Internationale".

Bahasa Indonesia is widely used as a spoken and written language within Dili generally and in the office in particular. (The ratios may be very different in the rest of the country. Probabilities are that the proportion of Portuguese speakers is even lower) Further there seems to be no training in place for building high functional levels of Portuguese (or English). Potentially this is a linguistic, economic and outcomes "poverty trap".

This is a classic *"fait accompli"*, and it's pointless pondering ⁴why's or hows here, none the less, an awareness of the "3+1 languages" approach is needed when planning both as an agency "looking in" and internally. There are productivity and communications issues associated with this set of protocols.

per se:

⁴One point to absorb is the simple fact that Tetum does not (yet) have the range and scope of the other languages.

Documentation intended for Ministerial reporting or presentation to Parliament must be translated from (Bahasa Indonesian or Tetum) to high level Portuguese. The cost per page is US\$ 20 per page / per draft. The process may involve many translations both ways, obviously risks the original intent and can take 4 months. Electronic communications would speed this process up many times over. On-line or Network access to translators would be of even greater benefit.

Many of the ⁵staff asked that Computers be configured in English as a safe default. IT support staff from Portugal tend to install and configure Windows boxes to be Portuguese only, effectively rendering the systems opaque to 90% of end users. While it is simple to reconfigure the systems this is beyond most end users.

2.2 Current Usage Issues

As outlined in the ⁶associated report the current infrastructure is underutilised.

There seems to be no conceptual level resource planning beyond solving pressing, resource based problems. Adding more under-trained staff using inherently limiting software, on under-utilised machines can be no real enhancement to the capacity of the organisation.

A lack of focused TRAINING (ongoing or otherwise) and a NETWORK INFRASTRUCTURE prevents the full use of the facility. There are numerous vectors here. At times these can appear to unresolvable. Some "procedures and approaches" are already entrenched and the use of closed systems effectively blocks development and implementation of outcomes based work methods. In almost every case training and the development of concept based protocols would ameliorate the situation.

Following are some observations in short point form, these are not in any particular order as they interact with each other and the relative importance of any single issue will vary in any particular situation.

It should also be noted that the same issues are present in any Computer based working group, here though it is a matter of quality, spectrum and degree.

As an organisational group these people almost universally, deal with all of these impediments to using Information Technologies... all of the time.

Operational Maintenance for Current Operating Systems is not understood, or implemented.

Hardware maintenance and cleaning is almost non existent.

⁵Including Department Heads and the more IT literate users

⁶SOCIAL SERVICES COMPUTING ENVIRONMENT AND ASSOCIATED ISSUES (RELEASE 0.0.3 OR LATER) PG 2003

Applications	and Suites are used in basic, vendor specific and often inefficient ways. No advantage is taken of templating, versioning or transferable standards.
Critical	files and databases are held on single, vulnerable machines.
Backups	and file sharing are not able to be efficiently utilised.
Data	is stored in rudimentary ways with little attempt to build a resource that extends beyond immediate needs.
Security	approaches and protocols are not implemented, understood or appreciated.
Skill	sets are narrow in focus and of basic utility.
Human	resources for Training , IT policy Development and Implementation are non-existent.
Early	adopters are not utilised as change agents or mentors.
Mentoring	where it currently exists is not encouraged or supported.
Cultural	paradigms discourage persons in non-leadership roles from taking initiative. Concurrently those in leadership roles are usually over committed and unable to devote time to building awareness of usage issues.
Languages	used on the current interfaces are not understood and present a barrier to self instruction.
Resources	tend to <i>sink</i> to those that do have some ability with them and unfortunately the status thus gained does not make those resources generally accessible.

2.3 The Departure

"⁷So long and thanks for all the fish"

The ongoing pullout by the United Nations has exposed critical path weaknesses in areas of technology and skills transference. Centralised administrative impediments compound this problem.

The continued scaling back and departure of the United Nations while inevitable, and a desirable transition, will place increasing pressure on all of Timor Leste's service sector and economy generally. Current structures are stretched delivering basic services. A state of near crisis has become the norm.

⁷Douglas Adams. Hitchhikers Guide to The Galaxy

There are perceivable tensions and nervousness over the scaling back of military support and the pullout of the UN generally. My hope is that all of this is unfounded natural anxiety and somehow the skills will natively emerge to run a modern connected social infrastructure.

Political and Social stability aside, the systems of procurement, servicing and capacity building would to this observer at least become (probably exponentially) unstable. Much is being done to plan and develop policy for the transition and beyond but little development of ongoing capacities to develop and transfer IT skills (at least) are obviously in place. Beyond Dili the situation is reportedly very much worse.

Should the departure coincide with a major drop in general offshore support (and that is not unlikely) the local infrastructure and processes may well be pushed beyond effective delivery.

An indicator of the lack of transferable skills and capacities is the situation with donated ex UN vehicles.

A pool of these now surplus vehicles are being gradually made available to the Timor Leste Government. The capacity to service and maintain them has not been transferred. There is a general awareness of the paradox but no effective ability to correct the situation. Neither the UN or the Timor Leste Government have deliverable ongoing solutions.

The operational life and utility of these important machines may well be limited to that of the tyres or a simple transmission/axle pressure relief valve. Many Indian built (low quality) Four Wheel Drives are already out of service due to simple suspension breakages, others suffer poor wheel alignment or simple servicing problems.

Government regulation and pooling procedures compound the problems directly causing serious impediment to the Department of Social Services delivery of relief level aid and services in outer areas.

The future for Computing Infrastructure will inevitably be worse.

2.4 Greatest Needs

THE SINGLE AREA OF GREATEST COMPUTING TECHNOLOGIES NEED IS TRAINING AND CULTURAL DEVELOPMENT.

The current IT Culture is primarily informed by the specific applications available to the organisation. Solid attempts are being made to increase capacities but there is little chance of efficiently escaping the "lock in" that currently exists.

To obtain even linear increases and value from additional resources the IT approach is going to have to be altered. This need not be too disruptive, and there are many solutions that would fit the situation and in the longer term deliver synchronism's that would fuel true Capacity improvement.

Chapter 3

Capacities and Solutions

Chaos and Feedback

The Ministry requires assistance in Computing Technologies:

- Policy development.
- Skills growth and deployment.
- Planning and Implementation.
- Scoping and Tasking

I can not judge the success of the broader mission but could see staff struggling to use the technologies in place; trapped by the collusion of narrow skill sets and a limited desktop environment. The current delivered IT functionalities could be replicated with typewriters , carbon paper and a high quality scanner. (and possibly more effectively)

3.0.1 Building Capacities

The majority of impediments to immediate and continuing productive use of the Computing Infrastructure would be removed with the implementation of an integrated, ongoing capacity building program.

Ideally an ongoing skills development policy would be as open ended and flexible as possible. Objectives would include servicing the needs of the department as it evolves, facilitating a culture of self instruction and extension, while reinforcing and extending the value of the skills and hard infrastructure available.

Skill sets should be refined and developed both externally and in house.

Recognition should be accorded to those who attain high functional levels in the work place.

The development and roll out of a secure professional network would greatly enhance most capacities within the Department. A high utility server would also provide the means to maximise the productive value of hardware and expose multipliers throughout the entire system.

3.0.2 Skills Development

While Skills Development should go beyond formal training schemes, as a convenience here I swaddle the subject broadly within Training and Instruction in an attempt to describe some solutions to the current situation...

Instructional Targets

Early instruction should be focused on quickly building a working familiarity with the applications and concepts utilised in general office work. Fundamental keyboard and pointer skills should be taught along with basic health and safety issues, ergonomic awareness and other office protocols.

Current staff need to be brought to a common minimum standard.

Core formal training should include hands on training in: standardised filing structures, templates for Word Processing and Spreadsheets, document version protocols and annotation, basic file formats, and common office machines such as printers facsimile machines and photocopiers. Communication tools such as Instant Messaging, Calendaring and Email should be introduced at an early stage.

All staff should be versed in a common set of approaches, protocols and concepts. This would form a unified base and tool kit from which further capacity could be grown and provide a productive target for the 40% or so of people who are not learning focused.

Content and outcome rather than Application specific approaches should be demonstrated and practiced.

Individuals should be taught to use the computer as a tool and not allow generic Applications to proscribe approaches, solutions, design or content.

Software should be tasked with suggesting and assisting in the production of accessible, distributable content.

Confidence and respect for the Hardware and Software should be nurtured through simple example and basic instruction with the equipment being used. True procurement / replacement costs of the equipment should be noted.

Instructional Approaches

//:Open Systems means Open Minds means:// ad infinitum

(try reading9)

Building Confidence Fluency Trust and Transparency

- Delivery is enhanced through practice with Technologies.
- Skills and concepts taught should have ready, simple and immediate application.
- Emphasis should be placed on self instruction and validation.
- Efforts should be undertaken to ensure a free, relaxed, team based approach to problem solving and basic process analysis.
- Self assessment and concept testing models should be introduced.

All practises should emphasise a sharing of skills and validation. Exercises, tutorials, and instructional games/puzzles should be freely available via networked connections or CDROM. It is important to update and revisit concepts and skills regularly to ensure effective application of new skills and to break users away from application driven approaches.

Advantage should be taken of any "Early Adopters" who may well be leveraged as Mentors.

The value of the work itself and the true cost and nature of the raw data produced should be underlined. Processes in building, securing and delivering the resource should be explained as an integrated operation.

A clear focus on mission, objectives and results ensures procedures are not ends in themselves.

More advanced concepts should be introduced as need, confidence and fluency become apparent.

Applicable examples of this may include Data Base design and management, HTML / XML Authoring, content based protocols, graphics and general design concepts. Project management and Data analysis. Process analysis and so on.

Finally some few people (and more than three) should be encouraged to develop Systems Administrator skills and be given the occasion to utilise them regularly. The possibility of building more powerful low level skills like interface design and coding capacities should also be explored, and facilitated.

Skills Deployment

"Ubiquity"

The IT skills base should be distributed across the entire organisation. Each Division should take primary responsibility for refining and communicating its own requirements within a loose, transparent, "whole of enterprise" model.

Feedback from each Division needs to be factored into training schemes and scheduling. Structured training should deliberately break across Divisional boundaries with each Division being made aware of and being exposed to the needs and training of other Divisions.

At a cultural level efforts will need to be made to ensure that all Divisions get full access to training and any on site help available. No single work group should be allowed to become either a resource/status sink or avoid exposure to broad general cross Divisional training or Protocols.

Should an IT section be established it should refine and undertake all training resourcing, be service based, and tied or housed with no particular Division.

3.0.3 Opportunities

Immediate steps could be undertaken to introduce a basic "train the trainer" scheme as a catalyst for broad skills development.

The approach might be selective and focused on a few individuals who would be tasked with supporting staff generally.

It should leverage any other Training or support that may be available.

In all cases the sharing and practice of these skills should be encouraged or even directly facilitated.

Departmental tasking should include actively seeking information on training schemes throughout Government and non-government sectors. Procedures and resources need to be put in place for this, and delegates need to be enabled to attend any such schemes.

This would be a simple leveraged and cost effective foundation to long term improvements to the IT usage. While not directly addressing resource based needs it would go some way toward developing a more effective, simple and pleasant work experience.

Chapter 4

Strategic Planning

Central to any strategies for infrastructure utilisation (and related approaches) would be the implementation of a flexible, secure, whole of enterprise network.

The hardware would need to be deployed with policies and resourcing to maintain and update the infrastructure and skill sets. 2.3

My recommendation would be for an Open-Source based Network . This would support all required services, enable gentle migration from the current lock in, and provide much in the way of synchronism's across all areas of use.

The concepts and functionalities delivered by a whole of enterprise network should include:

4.0.4 Topology

1. mirror the functional structure of the Department
2. Class B to accommodate simple sub-netting
3. DHCP capable (for Laptops and other portable systems)
4. Netbios capable (behind firewall !)
5. Consider any interdepartmental networking
6. Switch (¹MAC) based. (subnets may use Hubs)
7. Consider future distributed computing requirements. ²Clustering , Virtual Private Networks etc
8. Provide a secure and managed Gateway(s) to full Internet services.

¹Media Access Control

²Effectively combining all the desktops into one very powerful machine

4.0.5 Core Services

- Firewall(s) IP-Tables and / or IP-Chains based. Subnets could also have an extra wall
- HTTP Web Server (Apache)
- FTP File Transfer Protocol
- DHCP Dynamic Host Control Protocol
- SSH Secure Shell Daemon (Secure Telnet)
- NFS Network File Services (very useful and flexible file sharing, thin clients etc)
- SAMBA (Windows Networking)
- MTA Mail Transfer Agent (e.g Exim Procmail or Sendmail)
- Jabber Instant Messaging
- IRC Internet Relay Chat (Live Chat groups)
- Postgresql / mysql database servers
- SQUID Caching proxy server
- Anti-Virus services
- Access Monitoring and Logging tools

4.0.6 Extra Services (readily supported)

- Spam-Assassin Anti SPAM front end for Email Clients.
- Procmail Powerful extra Mail sorting and delivery
- Fetchmail System and individual user automated mail fetching
- NTS Network Time Server (keeps all computers in step with very accurate time keeping)
- Named Internet domain name server (DNS) used locally
- Whois directory service
- A Groupware suite (or two) e.g. PHP-Groupware and / or Evolution

4.0.7 Other Network Considerations

Security, reliability and scalability should be fundamental considerations in any design.

For these reasons alone Windows based Servers should be avoided at almost any cost.

The design should not exclude the use of Iron Box and Honey Pot approaches to blocking and diverting direct attacks.

A little careful thought can distribute services in a layered manner behind multiple conceptually different Firewalls. to this end a combination of FreeBSD and Linux servers may be effectively deployed.

Any Windows based networking (Win-Sock Netbios etc. must be behind the more resilient and secure Linux / FreeBSD servers.)

To maximise resource efficiencies and longevity a "thin client" approach should be taken with workstations.

For simplicity and scalability each division could be serviced with it's own simple NFS based server/gateway with scheduled backups organised on a small server farm.

The Internet / External router(s) needs to be a high quality machine and should NOT be the site of backups or any sensitive non public file storage. Full advantage should be taken here of Caching.

Advantage should be taken of mirroring installed package sets and automated security upgrades available from most Linux distributors. Debian in particular is well known for these reasons and a maintains highly professional levels of stability.

I could identify no usage requirements that mandated the use of Windows based desktops, however should they be continued, please take advantage of the services and protection the Linux servers can offer. (Windows specific Virus tools should none-the-less be kept up to date.)

The introduction of Linux based desktops is a matter for a future document.

I will simply note here that using Open Source software would be the best available fit for Social Services.

Chapter 5

A Joint Resource Centre

An overview of a Joint Resource Training Centre .

The preceding "Skills Development" approaches if implemented with ongoing support and active facilitation would address confidence building, basic maintenance and peer teaching issues.

However such skill-sets developed may tend to be limited by ¹current usage patterns and not find ready use within other departments or sectors. Achieving proactive improvements in IT and human resource capacities will take wider strategic approaches.

5.1 A Facility

A Resource Centre simply provides a structure and the physical resources to undertake instruction.

While primarily I am focusing on direct Computer related technologies there is no reason this approach could not be extended across all areas of Communication or Instruction generally.

Whatever the physical or organisational approaches the needs and objectives for training flexible cooperative field level IT workers should be paramount.

By combining and leveraging skills, facilities and other Organisations structures it should be possible to develop a Joint Resource Centre which could facilitate generic and specialist training within the Communications Sector at least. Any facility could be designed to provide a resource hub with skills and infrastructure able to support wider community uses (as capacities expand and are put into service) .

The department of Social Services and Solidarity would make an ideal client / driver for a pilot project.

¹Through lack of exposure to other approaches and thinking.

5.1.1 Deliverables :

Deliverable Services might include:

General ISP type services.

Centralised IT support

Off site archiving and backups

Targeted and general IT Training

Translation Services including:

- Voice and Document Translation.
- Electronic Dictionary creation and translation.
- Computer Interface Translation

Hosting and support of other training schemes in non related areas.

Internet Access and Support:

- Research assistance.
- Electronic banking (National and International)
- Access to "E-Learning" programs.
- Simple Email and Instant messaging based communications.

High end communications and electronic conferencing.

(including translations)

Basic repairs and upgrades.

Secretarial support.

High resource computer processing:

- Graphics
- Audio
- CAD
- Mathematical Modelling

Access to Electronic Government Services

5.2 Resourcing

Resourcing a "proof of concept" project would best be undertaken by a co-operative of a Non Government Organisation, the UN and a funding body such as AUSAID. The Resource Centre should be created as an entity with affiliations to the NGO and the Department of Social Services.

Ready access to "clients", advisors and trainers will be required for the pilot to proceed efficiently. This suggests either using existing Departmental infrastructure or secure real estate nearby. In any case an active NGO would be well positioned to judge the availability and suitability of any building infrastructure.

Delivery models are yet to be developed. There is no reason they could not be flexible. Many efficiencies and values might be gained from a mixed delivery system.

AUSAID's current "Capacity Building" funding schemes would seem to be a good fit for this project.

FaCS and similar organisations could lend valuable support to a Resource Centre and Social Services through facilitation training, office skills development, policy development procedures and other professional public service skills.

Skills will need to be imported and transferred until some critical mass of "graduates" are in place and functioning with some efficiency. Deployment of the concept throughout Timor Leste will also require resourcing and support over some yet to be determined period of time.

5.3 Training

Training requirements particular to the apparent needs of Timor-Leste need to be fundamental to any Resource Centre or Training Scheme.

Trainees will need to be able to work independently with few resources or support, throughout Timor-Leste and across administrative boundaries. In these situations they will need approaches that can assist them in validating their decisions and assessing outcomes. They will need the confidence that comes with simple solid training and strong active frank communications.

There are particular requirements to :

- Initiate grow and support a Communications Culture
- Engage an ethic of self help, creativity and craftsmanship.
- Leverage the current Multilingual environment.
- Work with a low resource base
- Remain at service to the general population.

Impart a collaborative, service orientated approach.

Empower trainees with tools for self assessment, instruction and validation.

Skills acquired need to be directly applicable, transferable, qualitatively assessable and include training, assessment and supervisory skills.

In my assessment any successful long term Training or Resource Centre will need to be cognisant of these base issues and be focused on imparting a culture of supportive, co-operative, needs based learning.

5.4 A Potential Integrated Course Structure

- *Teaching and Training are not my areas of expertise.*

Following is an initial concept for an extensible workplace based training scheme in Computing Technologies. The content and scope should be compressed extended or discarded as local needs dictate. Hopefully it initiates some further considerations. It's just an idea ! Um kick it around ..

5.4.1 General Scope :

OPERATING SYSTEMS: Linux, FreeBSD, Windows2000(server) and Windows XP

HARDWARE PLATFORMS: Intel i386 Series and Power-PC based Computers

PERIPHERALS : Contemporary office type peripherals using Serial. Parallel USB Wireless and Fire-wire protocols.

CODING LANGUAGES : Unix BASH, Perl, PHP, Python and C. SQL

MARKUP / CONTENT LANGUAGES: SGML (docbook HTML XML) only.

APPLICATIONS: Word Processing, Spreadsheets, Databases, Communications Tools, Image creation and manipulation tools, Publishing tools and Coding interfaces.

COMMUNICATIONS SKILLS: Train the Trainer, Mentor and general "in the workplace" instructional skills.

5.4.2 Social Services notes:

Some objectives particular to The Department of Social Services may well include.

1. Ensuring a common IT "language set" and skills base for all staff.
2. Leveraging that base to develop higher skills as required.

3. Removing the fear factor from the desktop.
4. Utilising natural interests, curiosities, and interactions.
5. Developing distributed skills, leadership and quality centres.
6. Remaining focused and targeted on service delivery.
7. Keeping specialist staff numbers at manageable levels.
8. Reducing the requirement for micro-management.
9. Ensuring the drivers for skills development remain needs driven and as bottom up as possible.

Please read the section on skills development as well 3.0.2

5.4.3 Structure:

A common core plus 3 broad extensible strands.

External assessment and reference should be able to accommodated at all levels.

A Common Introductory Core strand (Strand 0) covers familiarisation, basic operation and simple office applications . (*see 3.0.2*)

Beyond that :

- Strand 1 develops direct Systems Administration skills.
- Strand 2 develops Hardware specific abilities.
- Strands 3 and 4 cover more creative applications of computing, and could be extended as requirements decree.

From Level 3 all strands should include integrated Train the Trainer components.

5.4.4 Attainment Levels :

"Official certification" (and formal assessment) should be issued some weeks after completion of course and should be based on workplace / field assessment, completion / attendance of formal classes and a final practical test.

Higher levels should incorporate Training modules.

Teaching resources should be freely available and accessible at all times.

Assessment and course design should be proficiency based with emphasis on applied, current requirements and projected needs. Demonstrated workplace proficiencies should count for at least half (and up to 80%) of formal assessments.

5.5 Modules

Please note this course design is deliberately generic. It should find application within Social Services and was generated from the apparent need demonstrated while I was on site. Consider it an approach or model only. Times given should be considered a guide / weighting only. Primarily they note how long a level of functional ability might take to develop.

5.5.1 Level 0 Modules

This common and core level should be undertaken by all Social Services staff (everybody including the cleaners and ground-staff.) Specific refinements for Social Services could be integrated or replace the higher levels.

0-100 Introductory PC use (4 hrs)

- Mouse and keyboard basics.
- Naming the parts.
- Familiarisation.
- Logging In and Out.
- Maybe a game or two here.

0-200 Essential PC maintenance (4 hrs)

- Power up and shutdown.
- Cleaning.
- The PC , keyboard, and mouse.
- Include work environment issues like desk / chair / monitor relationships, desk space and machine ventilation requirements.
- Workplace safety issues could be covered here as well.

0-101 Intermediate PC use (6 hrs)

- Basic word processing and spreadsheet use.
- File formats and approaches to file keeping etc.
- Simple email , and group-ware access.
- Internet access and conditions of use.
- Any other organisation level requirements, approaches and protocols.

0-201 Hardware Interconnections(4 hrs)

- Electrical Safety issues.
- How to correctly plug the machine up with all associated peripherals.
- Connecting the computer to Uninterruptible Power Supplies, Printers, USB plug-ins etc.
- Disconnect, relocate, clean all parts and bring to working state a configured Personal Computer. (and you pass)

5.5.2 Level 1 Modules

As an example Social Services might replace say 1-31 (Web design) with a similar level course in Spreadsheet usage or a more generic Office Suite course. Alternatively they might just add those instruction sets.

1-11 Introductory Systems Administration (40 hours)

- Understanding file systems.
- File Permissions
- Simple user / Group issues
- Backup tools.
- Introduction to Command line tools.
- Installing and managing applications.
- Basic security issues etc.

1-21 Computer Assemblies(40hours)

- Exposing the inner working of the PC.
- Introduction to bus protocols.
- Approaches and organisation.
- Simple Pull down and rebuilds.
- Basic maintenance and BIOS configuration.

1-31 Introductory Web Design (20 hours)

- Introducing W3C html and xhtml.
- Coding interfaces and approaches.
- Content based approaches.
- Basic graphics design principles.

1-41 Introduction to Databases (20 hours)

- General introduction to types of databases.
- Accessing existing databases.
- Creating simple multiuser databases.
- Introduction to Open SQL standards.

5.5.3 Level 2 Modules**2-12 Introductory networking (40 hours)**

- Security, Principles and Protocols.
- Configuration.
- Basic Testing.
- Interfaces to simple tools.
- Network File Systems.
- Web servers, Mail transfer Agents.
- Advanced package management systems.
- User / group relationships.

2-22 Field Servicing and Repair (includes basic peripherals) (40 hours)

- Basic service requirements.
- Fault finding procedures.
- Repair and rebuild skills.

2-32 Web technologies (40 hours)

- Security.
- Java script.
- CSS.
- Image maps.
- Server Side Includes.
- Introduction to coding.
- Principles of design and layout.
- Whole of site management technologies.

2-42 Database management (20 hours)

- Creating fully featured databases.
- Security.
- Accessibility.
- SQL.
- Resource Management issues.
- Archiving and backups.
- Migration issues.

5.5.4 Level 3 Modules

All level 3 modules should include some instructional techniques.

3-13 Intermediate Networking (40 Hours)

- Kernel customisation.
- Network Topologies.
- Design and Implementation.
- System monitoring and traffic control.
- Firewall design and implementation.
- Advanced security approaches.
- Mixed environments.

3-23 Network hardware Infrastructure (40 hours)

- Switches and Hubs.
- Interface cards.
- Cabling.
- Wireless Protocols and Issues.
- Installation practises.
- Recycling older hardware.

3-33 Intermediate Coding and Scripting (40 hours)

- Common principles and approaches.
- System Level Scripting.
- Python Perl and PHP tutorials.
- Introduction to compiled languages (C).
- Applied SQL.

3-43 Applied Interface Design (40 hours)

- Layout and Interface issues for the end user.
- Advanced design principles.
- Tools and Human Interface Standards.
- Web and database Interfaces.

5.5.5 Level 4 Modules

All level 4 Modules should contain Train the Trainer components

4-14 Systems Administration (ongoing 8 hours per week over 3 months)

- Admin level scripting.
- Automating backups.
- Validating processes.
- Advanced command line tools.
- Management and resource allocation.
- Introduction to advanced networking principles.
- Documenting systems.

4-24 Whole of Systems Service (ongoing 8 hours per week over 3 months)

- Maintenance and deployment of networked systems.
- Basic fabrication and work techniques.
- Advanced UPS and power security.
- Emergency solutions.

4-34 Practical Coding (40 hours)

- Introducing principles from extreme programming.
- Basic Algorithm design and realisation.
- The ²GNU toolkit and standards.

4-44 Data and Productivity (20 hours)

- Cross platform protocols.
- Advanced approaches and refinement.
- Data base mining and data validation.
- Content based documentation / data base systems.
- Merging data streams etc.

4-50 Linux Professional Certification Level (External assessment)**5.5.6 Level 5 Modules**

At this level the strands merge into user driven driven strands.

All level 5 Modules should contain common Train the Trainer and Team management components.

Examples only given

5-15 Advanced Systems administration

- Project management.
- Human resource issues.
- Systems Analyst level stuff

²Gnu's Not Unix

5-25 Interconnection technologies

- Designing and building a wireless network.
- Clustering computers.
- Virtual private networks.
- Distributed computing etc.

5-35 Advanced Web technologies

- Application servers.
- Business to Business protocols.
- Data Certification / encryption.
- Streaming technologies.
- Conferencing etc.

5-45 Coding design principles and practical applications

- Advanced coding practises and abstraction.
- Application Project Management.

5-50 Advanced Linux Certification (External Assessment)

Addenda

This section contains supporting and additional information that may be read in association with the main body of this report. Contents include Inventories and Network Topologies.

Chapter 6

System Inventory

The following is a condensed form of the dispatched Inventory of equipment.

A more complete version is available should that be required with current copies held by CAiSA, FaCS and Social Services.

6.1 Computer Units

A total of 8 CPU units were shipped.

Configuration: Pentium 133 to Pentium 300

(average CPU speed +/- 200 MHz)

64 to 72meg of RAM.

Originally shipped with a minimum of 2 gig of hard disk space.

Maximum fitted was 10gig. (on main server)

Mini Tower, Desktop and Tower formats.

All fitted with fully tested and configured 100 MHz capable Network Interface Cards

6.1.1 Macintosh Power Book

Computer ID: TBA

LAN Dotted Decimal: NFR

Chassis Serial Number: FC2 343 YRX 14

Manufacturer: Macintosh

Model Name: Power Book

Model Number: 145

Form: lap Top / notebook

Height: Width: Length: Weight: allow 3 kg

Colour: Mac (OS7)Grey

Condition: OK

Other: Has Software and onboard Modem

Unfortunately this notebook proved to be unsuitable and faulty. It currently is with CAiSA awaiting service and repair work.

6.2 Network Hubs

2 of 16way (RJ54) 100 MHz Network Hubs were supplied.

Both are in excellent condition and remain on site.

6.3 Printers

2 of Epson LX300 Non PostScript Colour capable Printers.

Both in excellent order a spare ribbon each.

6.4 Monitors

Total of 8 Monitors were originally supplied. Some swapping occurred on site during general service work on other machines.

Minimum Specification SVGA/ VESA 14 inch

Manufacturer: NEC (Mostly)

Model: Multisync C500 (typical only)

6.5 Keyboards

10 Keyboards were supplied. These were mostly PS2.

1 spare serial and 1 spare PS2 keyboard were originally supplied.

(1 serial keyboard quickly became sensitive to the high humidity)

6.6 Mice

9 of Mixed PS2 and serial.

Mostly two button. All serial mice were three button.

Some swapping occurred on site.

1 extra PS2 mouse was constructed on site from broken local stock.

6.7 Consumables

Printers ink etc floppy's

4 of 1.4 inch Floppies with Debian Install start up and Rescue Software.

1 CD holder with 6 CD's of Debian "Woody"

4 of Replacement Inked Ribbons for LX300 Printer

6.8 Cabling

4 loose and various Ethernet Connection Cabling RJ54

1 length +/- 12 meters of RJ Cable (Cat 5)

16 ANZAC / IEC Power leads

2 by Par Port Cable for printer

6.9 Modems

2 of 33K External Modems @ \$10 ea - : \$20

Power Supply for one Modem.

2 Spare 33K Internal Modems were also supplied.

6.10 Loose Parts /Spares

50 or so RJ45 connectors

Assorted IDE and Floppy Ribbons

A few hand tools (Phillips head screwdrivers tape etc)

5 spare ISA / PCI hard disk drives. 2gig to ¹6 gig.

¹I am beginning to miss that one :(

4 X PCI Ethernet cards

3 X ISA Ethernet cards

2 X 2nd Hand CPU case Power Supplies

1 X 2nd Hand CDROM Player

Chapter 7

Typical System Report

Following is a reformatted and edited automated system report.

This was a typical configuration for one of the Workstations.

The Software listing is strategic not complete.

Word processors Spreadsheets and many other applications were included by default.

These were generated during the install and configuration process.

The software for generating a unique ID number, system reports and a few other install side things was written specifically for this project.

7.1 System Report for: apex

System Reference Identity : apex-2003-193-01-48

Report generated Fri Jul 11 16:48:38 UTC 2003

7.1.1 Hardware Configuration

The following hardware has been catalogued:

CPU

manufacturer/ vendor_id : Genuine-Intel

model name : Pentium 75 - 200

cpu MHz : 133.638 bogomips : 266.24

RAM

MemTotal: 61448 kB

IDE HARD DRIVES

hda: Maxtor 72004 AP, ATA DISK drive hda: 3924360 sectors (2009 MB) w/128KiB Cache, CHS=973/64/63

hdb: Conner Peripherals 1080MB - CFS1081A, ATA DISK drive hdb: 2114180 sectors (1082 MB), CHS=524/64/63

No /dev/hdc found

SCSI HARD DRIVES**CDROM and DVD Players**

hdd: LEOPTICS INC. 32X CDROM, ATAPI CD/DVD-ROM drive

Video Card(s) PCI

Found 1 Video Card(s)

VGA compatible controller: S3 Inc. Trio 64V2/DX or /GX (rev 4).

Section "Device" Identifier "S3 Inc. Trio 64V2/DX or /GX"

Driver "vesa" Option "UseFBDev" "true"

Floppy Drives

FDC 0 is a post-1991 82077

Sound Card**Network (Ethernet) Cards**

Active Ethernet Cards

eth0: RealTek RTL8139 Fast Ethernet at 0xc481cc00, 00:02:44:07:1a:ae, IRQ 11

7.1.2 Peripherals

Mouse and Pointers

Identifier "Configured Mouse"

Option "Device" "/dev/psaux"

Option "Emulate3Buttons" "true"

Option "Emulate3Buttons" "true"

Option "Protocol" "PS/2"

Keyboard

Identifier "Generic Keyboard"

Option "XkbRules" "xfree86"

Option "XkbModel" "pc104"

Option "XkbLayout" "us"

Monitor

Identifier "Generic Monitor"

HorizSync 28-90

VertRefresh 43-90

7.1.3 Software Configuration

Following are some notable software packages:

Kernel Version

Linux version 2.4.20dilli-d1 (root@nexus) (gcc version 3.2.3 20030221 (Debian prerelease))
#1 SMP Sat Mar 15 05:18:07 TPT 2003

Debian Distribution

testing/unstable

System Default Browser(s)

Mozilla 1.3, Copyright (c) 2003 mozilla.org, build 2003032710

General Browsers

dillo galeon mozilla-1.3

Mail User Agents

evolution mail mutt sylpheed sylpheed-claws

Graphics Applications

sketch xfig

Text and Code Editors

bluefish gedit nano vi vim

Chapter 8

Network Sketch

The following sketch outlines the basic concept behind the supplied network.

(only 6/7 Workstations shown)

The diagram illustrates a network topology. At the top, "Social Services" are represented by a blue circle containing a square with four arrows pointing outwards, labeled "Nexus". A light blue line connects "WWW" to the "Nexus". Below the "Nexus" is a yellow dashed circle labeled "Firewall". A black line connects the "Nexus" to a central grey box labeled "HUB". To the right of the "HUB", red text indicates "eth0 172.16.20.10". The "HUB" is connected to a horizontal bus line. Below this bus line, several devices are shown: "Acme" (IP 172.16.20.20), "Vertex" (IP 172.16.20.30), and "Peak" (IP 172.16.20.40). On the left side of the bus line, there is a printer icon labeled "Summit" (IP 172.16.20.50) and a server rack icon labeled "Crown" (IP 172.16.20.60 -> 160). Red text at the bottom right says "(ppp0 dynamic)".

- A full set of Configured services were served from Nexus. Which was eventually fitted with 3 Ethernet cards. (eth0 eth1 eth2).
- This was the simplest and least secure configuration configured.
- The naming scheme was chosen to be culturally neutral (A word list related to height and aspirations.)
- ¹CUPS was used to serve the printers to the network.

¹Common Unix Printing Services. Server, Net or local based Printer Management. CUPS can handle any number of printers on a local machine and / or distributed across the planet.

- (The printers could be attached to any box)
- This was later extended to include "virtual sub-netting", Dynamic Host Control protocol (DHCP), and integration with the Windows 2000 server.
- DHCP addressing was locked down to 172.16.20.161 - 200 . (or similar)
- Eth1 (not shown) was originally in place for the connection of an ²Iron Box (aka ³DMZ). This drawing makes no attempt to show those routes. The modem (ppp0) would in that case have been moved to the Iron Box or used only in the case of failure with the primary route.

²Iron Box.: A computer configured with minimal running services, strong multiple layers of security, obscured downstream addressing etc. It sometimes has contrived "active" file systems which are monitored for signs of intrusion.

³DMZ : Demilitarised Zone. A computer(s) configured as a buffer between the Local System Interface to external networks and the Local Area networks. It usually has a firewall at each end and should be transparent to the local system.

Chapter 9

Zen and IT

Make of this what you will. Paracetamol may help.

These are ¹”Think-loops”.

The idea is that they help you move forward or make decisions in a design or creative process.

They are of greatest value to the person who makes them (that’s the Zen bit) but perhaps they will be of use here in understanding how important it is for the Task to select the Tool and not the other way around.

The assumptions include task specific development of, quality driven approaches.

Or [Real Life] some bean counter is trying to screw constant productivity improvements out of a stretched resource.

¹Derived from a multidimensional design technique I used to use as Lighting Designer. (It’s a tool of that trade)

9.1 Open Delivery System - Recursive

How IT *should* serve delivery and quality development.

This also attempts to "deconstruct" Computing Technologies.

- Objectives determine Procedures
- Procedures implement defined Technologies.
- Technologies are scoped through Protocols and Standards
- Protocols enable productive communication.
- Standards are secured by procedures.
- Technologies serve Objectives.

Got that ??

Once you have do it all again, but this time substitute Designed for Defined.

Track what that might mean to standards or communication for instance.

I think it roughly models the creative utility Open Source Software can bring to a situation. You get to change anything you need to. The trick is to spot what to redesign, and when. Of course once you have designed a change you have effectively redefined it anyway.. but I digress.

9.1.1 Open loop learning -Recursive

You know this situation you have just finished some (complex) task, when all of a sudden you see how you should have done it!

Sometimes stated as:

"For Every problem there is a solution.....

And its wrong!"

It mates with the concepts above.

- For any Procedural determination, there will exist a better fit.
- The better fit solution will appear as understanding grows.
- Understanding grows with utilisation of solutions
- Solutions are determined by Objectives
- Objectives determine Procedures

9.2 Closed Delivery System - Regression

This is what happens with process lock in.

The process actively reinforces a small set of solutions (and limits your options).

It's good in simple closed ²environments.

- Objectives scope Solutions
- Solutions are defined by Procedures
- Procedures determine the Standard
- Standards are secured by Procedures
- Procedures define Objectives.

That last jump is a real outcome killer. The Lock-In occurs when you are seduced by the fools gold of any but the first step. The apple is bitten on the second step. It is what often happens when the under-skilled meets the oversold.

²Robots on an Assembly Line (for example)

9.2.1 Closed Loop Learning - Regression

Once again Lock-In.

This is what may happen with development feedback loops in closed situations.

It's a great way of learning ONE thing.

In truth we all need some of this for a little time as we gain confidence and naturally look for a better way.

One danger is getting stuck with one way of approaching everything.

- For any Procedural determination, there will exist a better fit.
- The better fit solution will appear as understanding grows.
- Understanding grows with utilisation of solutions
- Solutions are defined by Procedures
- Procedures are scoped by technologies
- Technologies determine solutions

Well if your still awake .. Thanks for getting this far.

I hope this was of some assistance.

Colophon

Written using Lyx (Version 1.3) a cross platform Open Source document preparation program.

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Please ask for your format of convenience or direct criticism, tirades of rage etc to:

Peter Gossner <gossner@arcom.com.au>

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